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Job No: CIVIL/BBMP/W.No.10/KRIDL/WMM/Gradation/2015-16 05.10.2015

GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Vidyaranyapura Sub-Division, BBMP, Bangalore.

Agency : **Technical Manager**, KRIDL, Bangalore.

Name of Work : Improvements and Asphalting to Zee School Road, KNV 1st Stage and Blue Moon Garden Ward No.10 (Doddabommasandra) Vidyaranyapura Sub Division, BBMP, Bangalore.

Reference : EE/BTP/KRIDL/W.O/682/2013-14 Dated: 05.03.2014

Date of Testing : 05.10.2015

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): **9965**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	320	320	3.2	96.8	95-100
22.4	2220	2540	25.5	74.5	60-80
11.2	1645	4185	42.0	58.0	40-60
4.75	2250	6435	64.6	35.4	25-40
2.36	1085	7520	75.5	24.5	15-30
0.600	1025	8545	85.8	14.2	8-22
0.075	935	9480	95.1	4.9	0-8

Note:

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05.10.2015

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

Agency : **Technical Manager,** KRIDL, Bangalore.

Name of Work : Improvements and Asphalting to Zee School Road, KNV 1st Stage and Blue Moon Garden Ward No.10 (Doddabommasandra) Vidyaranyapura Sub Division, BBMP,

Reference : EE/BTP/KRIDL/W.O/682/2013-14 Dated: 05.03.2014

Date of Testing : 05.10.2015

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **8020**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	185	185	2.3	97.7	95-100
22.4	2740	2925	36.5	63.5	60-80
11.2	1350	4275	53.3	46.7	40-60
4.75	980	5255	65.5	34.5	25-40
2.36	1150	6405	79.9	20.1	15-30
0.600	680	7085	88.3	11.7	8-22
0.075	550	7635	95.2	4.8	0-8

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Sadha AE

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GRADATION FOR WMM
MORTH TABLE-400-11

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Agency : **Technical Manager,** KRIDL, Bangalore.

Name of Work : Improvements and Asphalting to Zee School Road, KNV 1st Stage and Blue Moon Garden Ward No.10 (Doddabommasandra) Vidyaranyapura Sub Division, BBMP,

Reference : EE/BTP/KRIDL/W.O/682/2013-14 Dated: 05.03.2014

Date of Testing : 05.10.2015

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **8340**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	195	195	2.3	97.7	95-100
22.4	3000	3195	38.3	61.7	60-80
11.2	1505	4700	56.4	43.6	40-60
4.75	985	5685	68.2	31.8	25-40
2.36	950	6635	79.6	20.4	15-30
0.600	900	7535	90.3	9.7	8-22
0.075	420	7955	95.4	4.6	0-8

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05.10.2015

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Vidyaranyapura Sub-Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements and Asphalting to Zee School Road, KNV 1st Stage and Blue Moon Garden Ward No.10 (Doddabommasandra) Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/KRIDL/W.O/682/2013-14 Dated: 05.03.2014
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	05.10.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	388	385	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	86.5	87	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301.5	298	
4	Aggregate Impact value = percent fines	22.29	22.60	
	100* (W_2/W_1)%			22.45

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

Note:

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Sadhu AE

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Job No.: CTCE/BBMP/W.No.10/KRIDL/WMM/AIV/2015-16 06.10.2015

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements and Asphalting to Zee School Road, KNV 1st Stage and Blue Moon Garden Ward No.10 (Doddabommasandra) Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/KRIDL/W.O/682/2013-14 Dated: 05.03.2014
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	06.10.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	385	386	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	85	86	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	300	
4	Aggregate Impact value = percent fines	22.08	22.28	
	100* (W_2/W_1)%			**22.18**

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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Zeeba AE

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Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements and Asphalting to Zee School Road, KNV 1st Stage and Blue Moon Garden Ward No.10 (Doddabommasandra) Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/KRIDL/W.O/682/2013-14 Dated: 05.03.2014
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	06.10.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	378	379	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	78	79	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	300	
4	Aggregate Impact value = percent fines	20.63	20.84	
	100* (W_2/W_1)%			**20.74**

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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Zadhav AE

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Job No.: CTCE/BBMP/W.No.10/KRIDL/WMM/Shape.T/2015-16 : 05.10.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	: **Asst. Executive Engineer,** Vidyaranyapura Sub-Division, BBMP, Bangalore.
Agency	: **Technical Manager,** KRIDL, Bangalore.
Name of Work	: Improvements and Asphalting to Zee School Road, KNV 1st Stage and Blue Moon Garden Ward No.10 (Doddabommasandra) Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	: EE/BTP/KRIDL/W.O/682/2013-14 Dated: 05.03.2014
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Wet Mix Macadam
Date of Testing	: 05.10.2015

Civil-Tech Consultants & Engineers Bangalore

Result : Flakiness Index = **12.52%**

Elongation Index = **13.96%**

Result : Combined Flakiness & Elongation index **26.48%**

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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Job No.: CTCE/BBMP/W.No.10/KRIDL/WMM/S-T/2015-16 06.10.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of Work	Improvements and Asphalting to Zee School Road, KNV 1st Stage and Blue Moon Garden Ward No.10 (Doddabommasandra) Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/KRIDL/W.O/682/2013-14 Dated: 05.03.2014
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	06.10.2015

Result : Flakiness Index = **12.30%**

Elongation Index = **13.15%**

Result : Combined Flakiness & Elongation index 25.45%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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Job No.: CTCE/BBMP/W.No.10/KRIDL/WMM/S-T/2015-16 06.10.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of Work	Improvements and Asphalting to Zee School Road, KNV 1st Stage and Blue Moon Garden Ward No.10 (Doddabommasandra) Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/KRIDL/W.O/682/2013-14 Dated: 05.03.2014
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	06.10.2015

Result : Flakiness Index = **11.95%**

Elongation Index = **13.10%**

Result : Combined Flakiness & Elongation index 25.05%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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Job No.: CTCE/BBMP/W.No.10/KRIDL/CSR.10/982/BC(QB)/2015-16 26.10.2015

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

* CUSTOMER	:	**Asst. Executive Engineer,** Vidyaranyapura Sub-Division, BBMP, Bangalore.
* AGENCY	:	**Technical Manager,** KRIDL, Bangalore.
* NAME OF PROJECT	:	Improvements and Asphalting to Zee School Road, KNV 1st Stage and Blue Moon Garden Ward No.10 (Doddabommasandra) Vidyaranyapura Sub Division, BBMP, Bangalore.
REFERENCE	:	EE/BTP/KRIDL/W.O/682/2013-14 Dated: 05.03.2014
SAMPLE ID	:	Bitumen
SAMPLE RECEIVED ON	:	24.10.2015
DATE OF TESTING	:	26.10.2015

The results of the tests conducted on the Bitumen sample for Bituminous Concrete are as follows:

Sl.No	Description	Technical Reference	Test Result	Requirement as per IS: 73-2013
1	Penetration at 25^{0}C, 100g, 5 Sec 1/10 mm	IS: 1203-1978 (RA-2009)	92.0	80 to 100
2	Softening point, ^{0}C	IS: 1205-1978 (RA-2009)	48.0	Min. 40
3	Ductility at 27^{0}C, cm	IS: 1208-1978 (RA-2009)	100 >	Min. 75
4	Flash Point, ^{0}C	IS: 1209-1978 (RA-2009)	286	Min. 220

*Information is furnished by the Customer/Representative.

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Job No.: CTCE/BBMP/W.No.10/KRIDL/SDBC/AIV/2015-16 26.10.2015

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP,
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements and Asphalting to Zee School Road, KNV 1st Stage and Blue Moon Garden Ward No.10 (Doddabommasandra) Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/KRIDL/W.O/682/2013-14 Dated: 05.03.2014
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	26.10.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	380	381	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	80	81	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	84.5	300	
4	Aggregate Impact value = percent fines	21.05	21.26	
	100* (W_2/W_1)%			**21.16**

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

Note:

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Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP,
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements and Asphalting to Zee School Road, KNV 1st Stage and Blue Moon Garden Ward No.10 (Doddabommasandra) Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/KRIDL/W.O/682/2013-14 Dated: 05.03.2014
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	26.10.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	389	390	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	89	90	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	84.5	300	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	22.88	23.08	22.98

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

Note:

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Job No.: CTCE/BBMP/W.No.10/KRIDL/SDBC/Shape_T/2015-16 : 26.10.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	: **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager,** KRIDL, Bangalore.
Name of Work	: Improvements and Asphalting to Zee School Road, KNV 1st Stage and Blue Moon Garden Ward No.10 (Doddabommasandra) Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	: EE/BTP/KRIDL/W.O/682/2013-14 Dated: 05.03.2014
Technical Reference	: IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	: Semi Dense Bituminous Concrete
Date of Testing	: 26.10.2015

Result : Flakiness Index = **12.35%**

Elongation Index = **13.10%**

Result : Combined Flakiness & Elongation index **25.45%**

Comments:

Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

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ಯಲಹಂಕ ವಲಯ.
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Job No.: CTCE/BBMP/W.No.10/KRIDL/SDBC/Shape_T/2015-16 : 26.10.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**: Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**: Technical Manager,** KRIDL, Bangalore.
Name of Work	: Improvements and Asphalting to Zee School Road, KNV 1st Stage and Blue Moon Garden Ward No.10 (Doddabommasandra) Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	: EE/BTP/KRIDL/W.O/682/2013-14 Dated: 05.03.2014
Technical Reference	: IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	: Semi Dense Bituminous Concrete
Date of Testing	: 26.10.2015

Result : Flakiness Index = **11.02%**

Elongation Index = **13.95%**

Result : Combined Flakiness & Elongation index **24.97%**

Comments:

Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

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Job No.: CTCE/BBMP/W.No.10/KRIDL/SDBC/Stripping/2015-16 28.10.2015

Stripping Value of Road Aggregates (Static Immersion Test)

IS: 6241

Client	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Technical Manager, KRIDL, Bangalore.**
Name of the work	Improvements and Asphalting to Zee School Road, KNV 1st Stage and Blue Moon Garden Ward No.10 (Doddabommasandra) Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/KRIDL/W.O/682/2013-14 Dated: 05.03.2014
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	28.10.2015

Type of binder : 80/100
Percentage of binder used : 5.0% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10.0 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.2	3.30	96.70
2	3.3		
3	3.4		

Comments:

→ Minimum allowable Aggregate retained coating for Semi Dense Bituminous Concrete is 95%

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Job No.: CTCE/BBMP/W.No.10/KRIDL/SDBC/Sp_Wa/2015-16 28.10.2015

Specific Gravity And Water Absorption Test

IS: 2386 Part III

Client	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements and Asphalting to Zee School Road, KNV 1st Stage and Blue Moon Garden Ward No.10 (Doddabommasandra) Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/KRIDL/W.O/682/2013-14 Dated: 05.03.2014
Type of Mix	Semi Dense Bituminous Concrete
Source / Location	Hotmix Plant, Bangalore
Date of Testing	28.10.2015

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2024	2025	2026	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1269	1270	1271	
4	Weight of saturated surface dry aggregate in air	W_3 g	2014	2015	2016	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	745	745	745	
6	Weight of oven dried aggregate	W_4 g	2000	2001	2002	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.685	2.686	2.687	2.686
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.736	2.737	2.739	2.737
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.70%	0.70%	0.70%	0.70%

Comments:

→ Maximum allowable Aggregate Water absorption value for Semi Dense Bituminous Concrete is 2.0%

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Job No.: CTCE/BBMP/W.No.10/KRIDL/SDBC/Bit/2015-16 28.10.2015

BITUMEN CONTENT DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX AS PER IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** Vidyaranyapura Sub-Division, BBMP, Bangalore.
AGENCY	**Technical Manager,** KRIDL, Bangalore.
NAME OF THE WORK	Improvements and Asphalting to Zee School Road, KNV 1st Stage and Blue Moon Garden Ward No.10 (Doddabommasandra) Vidyaranyapura Sub Division, BBMP, Bangalore.
REFERENCE	EE/BTP/KRIDL/W.O/682/2013-14 Dated: 05.03.2014
SAMPLE I/D	Zee School Road Blue Moon Garden Ward No.10
DATE OF TESTING	28.10.2015

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	475	475
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	25	25.00
7. Bitumen content in %	5.00	5.00
8. Average	**5.00**	

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ರಾಜರಾಜೇಶ್ವರಿ ನಿಲಯ,
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Job No.: CTCE/BBMP/W.No.10/KRIDL/SDBC/Bit/2015-16 28.10.2015

GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX AS PER IS2386 & IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** Vidyaranyapura Sub-Division, BBMP, Bangalore.
AGENCY	**Technical Manager,** KRIDL, Bangalore.
NAME OF THE WORK	Improvements and Asphalting to Zee School Road, KNV 1st Stage and Blue Moon Garden Ward No.10 (Doddabommasandra) Vidyaranyapura Sub Division, BBMP, Bangalore.
REFERENCE	EE/BTP/KRIDL/W.O/682/2013-14 Dated: 05.03.2014
SAMPLE I/D	Zee School Road Blue Moon Garden Ward No.10
DATE OF TESTING	28.10.2015

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	35.24	7.42	7.42	92.58	90-100
4.75	261.2	54.99	62.41	37.59	35-51
2.36	54.86	11.55	73.96	26.04	24-39
1.18	43.57	9.17	83.13	16.87	15-30
0.3	24.15	5.08	88.21	11.79	9-19
0.075	26.38	5.55	93.77	6.23	3-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	36.23	7.63	7.63	92.37	90-100
4.75	252.7	53.20	60.83	39.17	35-51
2.36	56.34	11.86	72.69	27.31	24-39
1.18	47.52	10.00	82.69	17.31	15-30
0.3	32.63	6.87	89.56	10.44	9-19
0.075	27.82	5.86	95.42	4.58	3-8

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Job No.: CTCE/BBMP/W.No.10/KRIDL/SDBC/AGG/2015-16 28.10.2015

Aggregate Gradation Test

IS : 2386 Part I

Client	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements and Asphalting to Zee School Road, KNV 1st Stage and Blue Moon Garden Ward No.10 (Doddabommasandra) Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/KRIDL/W.O/682/2013-14 Dated: 05.03.2014
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete (SDBC)
Date of Testing	28.10.2015

Total Weight of Sample: **5250** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	435	8.3	8.29	91.71	90-100	
4.75	2685	51.1	59.43	40.57	35-51	
2.36	650	12.4	71.81	28.19	24-39	
1.18	475	9.0	80.86	19.14	15-30	
0.3	390	7.4	88.29	11.71	9-19	
0.075	310	5.9	94.19	5.81	3-8	

Total Weight of Sample: **5300** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	250	4.7	4.72	95.28	90-100	
4.75	2685	50.7	55.38	44.62	35-51	
2.36	850	16.0	71.42	28.58	24-39	
1.18	515	9.7	81.13	18.87	15-30	
0.3	420	7.9	89.06	10.94	9-19	
0.075	320	6.0	95.09	4.91	3-8	

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